

A COMPARISON OF OBSERVATION WITH MODELING FOR ALBEDO AND TRANSMITTANCE OF SNOW (ABSTRACT)

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Snow surface albedo and transmittance inside the snow have been investigated by observation and modeling. Observations were taken by a grating type spectrometer at Tokamachi in March 1993. The observed snow was old and very wet. Microscope photographs of snow grains taken at this time indicate that snow grain is spherical particles with size of about 1.0 μm . Surface albedo and transmittance of snow by a multiple scattering model for the atmosphere-snow system with pure snow grain size of 1.0 μm have similar wavelength dependence to our observation. Though both the maximum albedo and transmittance have been observed at the wavelength 0.55 μm , model calculation shows that this wavelength is 0.45 μm . Moreover, the observed albedo is lower than the model with a maximum of 10% in visible region. It is considered that these differences are mainly due to impurities and/or liquid water in natural snow.

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